

CLAIMS:

1 1. A circuit to determine a velocity of a coil to  
2 which a driving current is applied in a magnetic field,  
3 comprising:

4 a circuit to terminate the driving current in said  
5 coil;

6 a circuit to apply a current to said coil to create a  
7 magnetic field to oppose eddy currents established in  
8 structures adjacent said coil by said driving current; and

9 a circuit for measuring a BEMF in said coil after said  
10 current has been applied to oppose said eddy currents.

1 2. The circuit of claim 1 wherein said driving current  
2 is in a first direction in said coil, and wherein said  
3 circuit to apply a current to said coil applies a current  
4 in a direction opposite said first direction.

1 3. The circuit of claim 1 wherein said circuit to  
2 apply a current to said coil applies a current for a time  
3 directly related to a time that a flyback current appears  
4 in said coil above a predetermined magnitude after said  
5 driving current has been terminated.

1 4. The circuit of claim 1 wherein said circuit to  
2 apply a current to said coil applies a current for a time  
3 directly related to a magnitude of the original current  
4 command after said driving current has been terminated.

1 5. The circuit of claim 1 wherein said circuit to  
2 apply a current to said coil applies a current for a time  
3 directly related to a magnitude of said driving current  
4 prior to when said driving current has been terminated.

1 6. The circuit of claim 1 further comprising a delay  
2 element to delay the termination of the eddy current  
3 opposing current for a predetermined time.

1 7. A circuit to determine a BEMF voltage of a VCM coil  
2 after termination of a driving current in a first current  
3 direction in said coil, comprising:

4 a circuit for activating selected VCM coil driver  
5 transistors to apply a current to said coil in a direction  
6 opposite said first current direction to generate a  
7 magnetic field to oppose eddy currents established in  
8 structures adjacent said coil by said driving current.

1 8. The circuit of claim 7 wherein said circuit for  
2 activating selected VCM coil driver transistors applies  
3 said current to said coil for a time directly related to a  
4 time that a flyback current appears in said coil above a  
5 predetermined magnitude after said driving current in said  
6 first direction has been terminated.

1 9. The circuit of claim 7 wherein said circuit for  
2 activating selected VCM coil driver transistors applies  
3 said current to said coil for a time directly related to a  
4 magnitude of the original current command after said  
5 driving current in said first direction has been  
6 terminated.

1 10. The circuit of claim 7 wherein said circuit for  
2 activating selected VCM coil driver transistors applies  
3 said current to said coil for a time directly related to a

4 magnitude of said driving current prior to when said  
5 ~~driving current has been terminated.~~

1 11. The circuit of claim 7 further comprising a delay  
2 ~~element to delay the termination of the eddy current~~  
3 ~~opposing current for a predetermined time.~~

1 12. A circuit for use in determining a velocity of a  
2 head assembly of a VCM after termination of a driving  
3 current in a coil of said VCM, comprising:

4 a circuit for activating selected VCM coil driver  
5 transistors to apply a current to said coil of said VCM to  
6 create a magnetic field that opposes eddy currents  
7 established in structures adjacent said coil by said  
8 driving current.

1 13. The circuit of claim 12 wherein said driving  
2 current is in a first current direction and wherein said  
3 circuit for activating selected VCM coil driver transistors  
4 applies a current to said coil in a direction opposite said  
5 first current direction.

1 14. The circuit of claim 12 wherein said circuit for  
2 activating selected VCM coil driver transistors applies a  
3 current to said coil for a time directly related to a time  
4 that a flyback current appears in said coil above a  
5 predetermined magnitude after said driving current has been  
6 terminated.

1 15. The circuit of claim 12 wherein said circuit for  
2 activating selected VCM coil driver transistors applies a  
3 current to said coil for a time directly related to a

4 magnitude of the original current command after said  
5 driving current has been terminated.

1 16. The circuit of claim 12 wherein said circuit for  
2 activating selected VCM coil driver transistors applies a  
3 current to said coil for a time directly related to a  
4 magnitude of said driving current prior to when said  
5 driving current has been terminated.

1 17. The circuit of claim 12 further comprising a delay  
2 ~~element to delay the termination of the eddy current~~  
3 opposing current for a predetermined time.

1 18. A method for determining a velocity of a coil to  
2 which a driving current is applied in a magnetic field,  
3 comprising:

4 terminating said driving current;

5 allowing a flyback current in said coil to reduce to  
6 below a predetermined magnitude;

7 applying a current to said coil of magnitude and  
8 direction to cancel eddy currents in structures adjacent  
9 said coil; and

10 measuring a BEMF in said coil, wherein a magnitude of  
11 said BEMF is directly related to the velocity of said coil.

1 19. The method of claim 18 wherein said applying a  
2 current to said coil comprises applying a current to said  
3 coil a time directly related to a magnitude of the original  
4 current command.

1        20. The method of claim 18 wherein said applying a  
2 current to said coil comprises applying a current to said  
3 coil in a direction opposite said driving current.

1        21. The method of claim 18 wherein said applying a  
2 current to said coil comprises applying a current to said  
3 coil for a time directly related to a time for said flyback  
4 current to reduce to below a predetermined magnitude.

1        22. The method of claim 18 wherein said applying a  
2 current to said coil comprises applying a current to said  
3 coil a time directly related to a magnitude of said driving  
4 current.

1        23. A method for determining a BEMF voltage of a coil  
2 of a VCM after termination of a driving current in said  
3 coil, comprising:

4        determining when said driving current has been  
5 terminated; and

6        activating selected VCM coil driver transistors to  
7 apply a current to said coil to create a magnetic field to  
8 oppose eddy currents established in structures adjacent  
9 said coil by said driving current.

1        24. The method of claim 23 wherein said driving  
2 current is in a first current direction, and wherein said  
3 activating selected VCM coil driver transistors comprises  
4 activating selected VCM coil driver transistors to create a  
5 current in said coil in a direction opposite to said first  
6 current direction.

1 25. The method of claim 23 wherein said activating  
2 selected VCM coil driver transistors comprises activating  
3 selected VCM coil driver transistors for a time directly  
4 related to a magnitude of the original current command  
5 voltage when said driving current is terminated.

1 26. The method of claim 23 wherein said activating  
2 selected VCM coil driver transistors comprises activating  
3 selected VCM coil driver transistors for a time directly  
4 related to a time that said flyback current is above a  
5 predetermined magnitude after said driving current has been  
6 terminated.

1 27. The method of claim 23 wherein said activating  
2 selected VCM coil driver transistors comprises activating  
3 selected VCM coil driver transistors for a time directly  
4 related to a magnitude of said driving current prior to  
5 when said driving current has been terminated.